

Patent Awarded

New Device Collimates Neutrons

A variable aperture neutron collimator invented by Ron Hill of Applied Technology Division 2562 has received a patent assigned to DOE. The device solves the problem of controlling and aiming neutrons for medical applications.

Sandia demonstrated the feasibility of building a neutron generator for the National Cancer Institute under a contract that started in 1976. By adapting weapons technology, a neutron generator was designed to produce about 10 trillion neutrons per second with an energy of 14MeV. To be useful in cancer therapy, a portion of those neutrons must be collimated into a beam providing a dose of 10 to 20 rads per minute during treatments lasting about five minutes.

Unlike ions, which can be focused to form a beam, neutrons are created from a point source and radiate in all directions. The conventional way to direct or aim neutrons is to contain the point source and open a small hole in the shielding material to allow the neutrons to escape in the desired direction. This method is feasible, but it's cumbersome in a laboratory, particularly in a clinical situation where a beam of a particular size is needed for radiation treatment of a specific organ. Polyethylene plugs with various size holes are usually inserted into the neutron shield to provide the desired size and shape of the neutron bombardment, a procedure that is not only cumbersome but time consuming.

Ron's variable aperture collimator can be easily adjusted to provide a square or rectangular cross-sectional aperture while maintaining a uniformly diverging line-of-sight from the neutron source. Two manual controls are easy to use, very quick and precise in their response.

The collimator is a purely mechanical device, relying on a clever shape and arrangement of polyethylene blocks and a series of shafts, pulleys, and gears for precision operation. (See illustration.)

The motion of the four identical blocks along their mounts can produce either a square or a rectangular aperture. Separate sets of blocks are mounted between parallel plates that have a circular hole at their geometric center. Gears, rollers, pulleys, and cables complete the mechanism. The gear ratios on the separate sets of blocks ensure that all sections skew at the appropriate rate to form a stepped, uniformly diverging aperture.

Several prototype models of the collimator have been built in Sandia's shops from Ron's designs. For clinical use, the device would be scaled up about 10 times and either mounted with the neutron generator beneath a surgical table or in a turret above the table.

"I sort of strayed from my profession of plasma physicist," Ron says, "but Frank Bacon, the neutron generator project leader, encouraged me to work on the problem. We knew there had to be a better way to collimate the neutrons. I guess I've always had an interest in mechanical devices — from rebuilding old cars and an-



B-1 bomber drops a parachute retarded B83 weapon shape at about Mach 1 during a test series earlier this summer at Tonopah Test Range. See article starting on page five.

LAB NEWS

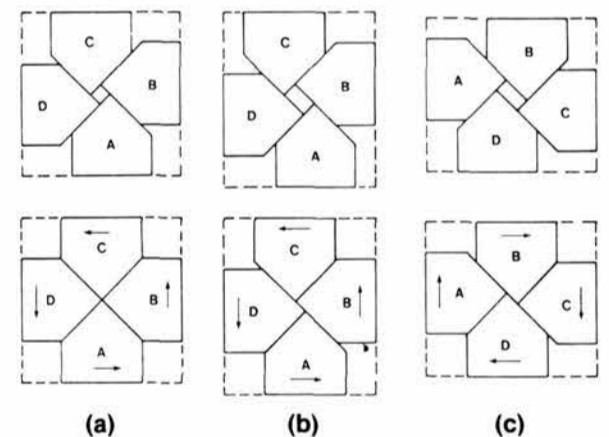
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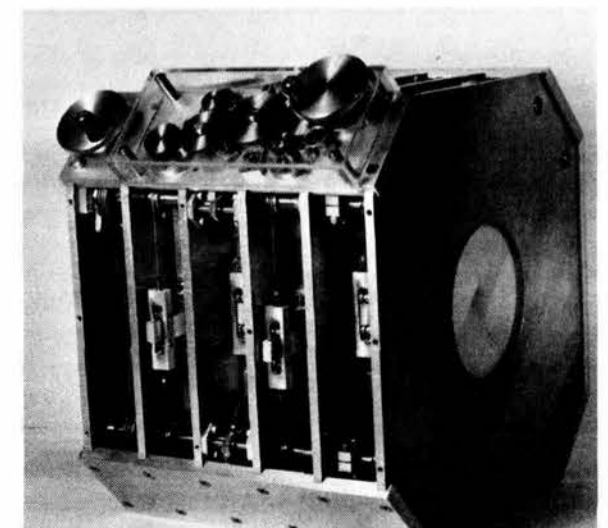
INVENTOR RON HILL (2561) displays a prototype model of his variable aperture neutron collimator that was recently patented. The mechanical device provides an adjustable-size square or rectangular aperture in a uniformly diverging line-of-sight from a neutron source. The device would be used with a neutron generator for medical applications.

tique clocks to some of the present hardware I've designed for the Quartz Crystal Fabrication Facility, Division 2534."

Ron holds one other patent — an apparatus for trapping light for Raman spectroscopy invented with Dan Hartley (8300) 10 years ago. Raman spectroscopy is a basic technique designed for the weapons program and for combustion diagnostics.



DRAWING (a) illustrates the concept of a variable square aperture using movable blocks. The next drawing (b) illustrates a variable rectangular aperture created by skewing the same blocks. Drawing (c) shows the blocks rotated front-to-back about an axis parallel to short side of the aperture. Note that this configuration would shield the separations in a set of blocks mounted parallel while providing a same-size aperture in the same position.



MECHANICAL sets of movable blocks in parallel sections, gears, pulleys, cables, and shafts are precisely controlled with the two knobs at the top of the collimator. Adjustments are quickly and easily made.

Antojitos

Praise the Lord and Pass the Admonition Last issue, I noted that we purists always differentiate between eager and anxious, the latter being reserved for those occasions that involve some worry over the outcome. In the same issue (!), we noted that "stories that hold out hope for cures of various diseases can lead to many anxious inquiries from people who think that the cure is available for them right now." Mea culpa. I also misspelled General MacArthur's name. Well, the greatest writers make mistakes—"Even Homer nods"—and I'm far from the greatest. Truth is, there's a fine line between being a purist and being a nitpicker, and I didn't tightrope-walk that line very skillfully last issue. So it serves me right to learn that the one story we didn't get a chance to proofread spelled normally "noramally" and, even worse, AT&T "AT T"! Guess I'll wait awhile to mount my admonitory high horse again.

* * *

That's Long Enough A new Air Force sign on Wyoming caught my eye last week: AIR POLICE CONFINEMENT CENTER. I know that sometimes they get a bit pushy, but couldn't they just discipline them with KP or something?

* * *

Overheard in the Cafeteria: "I've got 30 years here. I'll retire at 62—or three bad days in a row, whichever comes first." ●BH

* * *

No nació quien no erró. (We all make mistakes.)

Secretarial Seminar Scheduled Oct. 15 - 19

"Managing Change" is the theme of the Secretarial Seminar, Oct. 15-19 at the Coronado Club. The program includes presentations on the changing composition of Sandia staff, site planning, office automation at Sandia, and human factors with the automated office. Jerry Brown, FBI Special Agent, will discuss the "Hostile Counterintelligence Threat," and members of the medical staff will talk about stress management, fitness, and nutrition.

The seminar is sponsored by the Sandia Secretarial Committee. Committee members are Virginia Dalin (5140), Karen Andersen (1520), Nancy Barr (3720), Sheila Guynes (3551), Mary Kolesar (7550), Fran Roelle (2700), Carmen de Souza (6330), *ad hoc* members Mary Campbell (3523), Shirley Dean (22-2), and Carol Kaemper (21-1). Bob Garcia (3500) sponsors the committee.

Scheduling has been arranged to allow Sandia secretaries to attend one of the day-long sessions during the week. Registration begins at 7:30 a.m.

State Fair Exhibit

Microelectronics, Macro Impact

More than 100,000 State Fairgoers visited Sandia's microelectronics exhibit last month. The exhibit continued the ambitious efforts begun four years ago when the State Fair devoted a building to science and engineering displays. And this year's exhibit is not being totally dismantled — current plans call for major parts of it to live permanently at T-VI and SIPI. That's success.

Bob Gregory, director of Microelectronics 2100, the group that provided both the topic and much of the talent for the exhibit, states, "I believe that the exhibit was an excellent introduction to the microelectronic world for the average, interested-but-not-informed State Fair visitor. And I want to thank the many Sandians who volunteered their time to provide those visitors with the personal touch necessary to help them understand what they were seeing."

By all accounts, Bert Lindsay (2125) and

Joe Laval (3163) were the sparkplugs that made the exhibit a success. As technical coordinator, Bert worked with Joe in conceptualizing the exhibit, then in editing all the literature handouts, and finally in ensuring that all the equipment — some of it state-of-the-art — was in place and operating. He was assisted by Gil Trujillo (2122); Ron Jones (2144) was technical consultant.

Joe coordinated the design, construction, and installation efforts involved with the exhibit. 3155 and 2100 assisted with the design and provided graphics; the paint, metal, plastics, and wood shops constructed structural and display areas; and the millwrights helped put it all in place. Joe was

assisted by Andy Landis (3163). Tech Art and Photo Services 3155 people included Ted Baggett and Janet Jenkins, design; Bruce Fetzer assisted them; Jim Pennington and Russ Smith (and Jim Karo in 7632), photo support; Mitzie Morrato, typography; and Denise Archuleta, computer animation.

A videotape on Sandia's work in microelectronics, "Silicon Chips: The Sandia Mission," was also a part of the exhibit. Written, directed, and narrated by Nigel Hey (3161), the videotape will likely see future use by such groups as the NM Academy of Sciences. George Skinner (3153) did the videography, Denise Archuleta (3155) the animation, and Ron Jones (2144) the technical advisory task.



AS THE STATE FAIR VISITOR saw the Sandia exhibit on Microelectronics — LeRoy Garcia (3154), Delores Fromm, Antonio, and Matthew visited the exhibit last month. Not shown are the many Sandians who played a part in the project.

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Farewell, CDCs

The Computing Center recently held a farewell party as the first of Sandia Livermore's two CDC 6600 computers was powered down, then disconnected and removed by crane from the basement facility.

This particular 6600 was the thirteenth manufactured by Control Data and was acquired from LLNL in 1975 at virtually no cost, thanks to quick and skillful negotiations between DOE and Arnold Schuknecht (now 8020). The remaining 6600, acquired from CDC in 1970, is still operating, but it's scheduled to retire in January.

Although CDC 6600s are still powerful computers (once one of the world's *most* powerful), their reliability and operational and maintenance problems and associated costs make it impossible for SNLL to continue using them.

To prepare for the release of the 6600s, scientific codes were converted to run on the newer Cray and VAX computers. Management information, APT (automatically programmed tools), financial, and various business-related programs are currently being modified so they can be moved from the remaining 6600 to either the VAX computers or the new Management Information System's IBM 4341 computer.

The 6600s have been, or will be, declared excess property; they will be available for reassignment to another public sector agency.



ANTI-NUCLEAR PROTESTERS targeted the Sandia Livermore sign for vandalizing the pre-dawn hours of Sept. 24. Four protesters poured what they called their own blood from bottles on the sign. They then sat down with a dozen others and awaited the Alameda County Sheriff's Department, which came shortly and arrested the four on charges of misdemeanor malicious mischief. Firemen from LLNL are shown hosing down the sign. There were 107 total arrests during the day as the demonstrators attempted to block traffic on roads leading to LLNL and Sandia and climbed perimeter fences at Lawrence Lab's Site 300. It was the first such incident to involve Sandia Livermore.



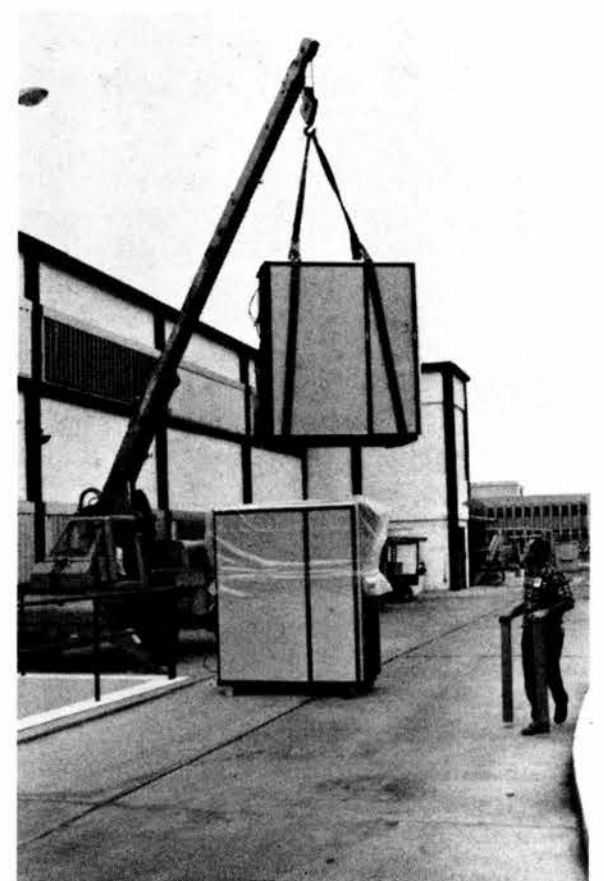
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SURROUNDING THE CDC control terminal during its farewell party are (from left) Bill Wilson (8320); Arlyn Blackwell (8200), who is officially pressing the "stop" button; Byron Murphey (retired 8300

director); Gary Drummond (8301); and Arnold Schuknecht (8020). Along with George Anderson (former manager of the Computation Department), they were the management people responsible for



operation of the CDC systems over the past 15 years. Other photo shows two of the four sections of the first CDC to be retired being lifted out of the Computing Center.

Take Note

The sixth annual conference for parents and educators of gifted children, sponsored by the Albuquerque Association for Gifted and Talented Students, will be held on Oct. 20 from 8 to 4:30 at the Albuquerque Academy. Conference participants may select from 14 workshops in four sessions that address the needs of gifted children from preschool through high school. Stop by the LAB NEWS office (Bldg. 814) for a conference program and registration form.

The NM Chapter, American Vacuum Society, will offer a short course in basic vacuum science and technology at the Hilton Hotel, Nov. 5-8. For more information, contact Ray Berg (2534), program coordinator, on 4-1668.

The South 14 Bookstand — If you open this book at random, you come across some rather curious headings, e.g. "Tomahawks with Curved Projections Above the Poll." *Firearms, Traps, & Tools of the Mountain Men* by Carl Russell offers many interesting tidbits about the high-tech of an earlier century. It's well illustrated with line drawings and includes an excellent introduction on the mountain man in American history. Published by UNM Press, this book costs \$9.95 and may be examined at the LAB NEWS office, Bldg. 814.

Electricity generated by the sun shining on photovoltaic arrays will provide power for a "Southwest Solarfest" to be held Oct. 20 at the Southwest Region Experiment Station (SW RES) located on the campus of NMSU at Las Cruces. The free, all-day, open house will feature self-guided tours, renewable energy and energy conservation films, video tapes, and seminars. The seminars, presented by the staff of the Solar Energy Institute, will be held on the hour in the photovoltaic-equipped residential prototypes at the experiment station. Subjects will be photovoltaic energy, including water pumping and stand-alone systems, wind energy, passive space heating, window insulation, solar water heating, and bioenergy.

The SW RES is one of three photovoltaic experiment stations nationwide funded by DOE's Energy Photovoltaic Program. It serves the states of New Mexico, Texas, Oklahoma, Colorado, Arizona, Nevada, Utah, California, and Hawaii.

For more information, call 1-800-432-6782.

A combination slumber party and Halloween party for kids in the first through sixth grades will be held at the Heights YMCA, 4901 Indian School Rd. NE, on Oct. 27. Swimming, movies, games, and breakfast cost \$12 for YMCA members, \$18 for non-members. Call the Heights YMCA (843-7221) to register.

Any father interested in joining a group to discuss specific issues of parenthood and to provide encouragement and support is invited to attend a meeting on Oct. 16 from 8:15 to 9 p.m. at Pediatric Care, 118 Dartmouth NE. Meetings are held on alternate Tuesdays; there is no charge, and all

fathers are welcome. For more information call Dave Breault, 843-2191 or Steve Prentice, 292-3670.

The NM Section of ASME will meet Oct. 24 at 7 p.m. in Bldg. 815. Verne Romesberg (6322) will talk on the WIPP Transportation System. Design and testing of the system will be discussed.

October has been designated as "Science and Technology Awareness Month" to increase public awareness of the contributions that applied research has made toward present day living conditions. To increase that science and technology awareness, Kathleen McCaughey (2543), chairman of the Section, suggests that you invite a nontechnical person to come with you to the meeting.

The TI Professional Computers Users Group of NM will meet Oct. 18, 7:30 p.m., at 1660 Eubank NE. For more information, call Horton Struve, 298-9193.

The Elena Gallegos Mountain Park — a wild, open space area on the northeastern edge of the city — will be officially opened in January next year. Volunteers for the Outdoors and the Open Space Division of City Parks and Recreation Department are asking for volunteers to help prepare for the opening. Saturday, Oct. 20, is Elena Gallegos Mountain Park Day. Help is needed to construct the first phase of the Interpretive Trail. This work will involve clearing, base construction, drainage and erosion structures, and laying a water line that will be used by hikers and picnickers.

Volunteers are asked to meet at the first gate to the picnic area, located two miles north of Montgomery on Tramway (look for VFO sign). Work will begin at 9 a.m., and volunteers can work one hour or all day. Bring hat, gloves, sturdy work shoes, appropriate tools if you have them, water, sack lunch, and energy snacks. For more information call Volunteers for the Outdoors, 344-1151.

The 10th International Vacuum Congress, the 6th International Conference on Solid Surfaces, and the 33rd National American Vacuum Society Symposium will be held jointly in Baltimore in October 1986. The Vacuum Science Division of this joint congress is now seeking proposals for speakers to be invited to the portion of the program for which the Division is responsible. The persons proposed should be internationally outstanding scientists and able to speak on one of several vacuum-related topics as listed on the call for speakers. If you are interested in proposing a speaker, please come by the LAB NEWS office for a copy of the nominating package. Nominations must be received by Nov. 20.

Several decades having passed since Jonathan Swift published his "Modest Proposal" for profitably adjusting the population of Ireland to manageable proportions through applied anthropophagy, one Lee Garner (supervisor of the division populated by those writers of a technical bent) has inserted his lingual member firm-



DON JOE (3442) AND DEBRA TRUJILLO (5263) demonstrate the Evac+Chair in the stairwell of Bldg. 821. The Safety Department purchased several of the chairs to be used in emergency situations for wheelchair-confined employees whose work location is above the first floor of a building. Medical has trained security inspectors and co-workers of the wheelchair employees in the proper handling procedures for the evacuation chair. Debra says that, thankfully, she has only used the chair in demonstrations and practice sessions, but that it provides a quick, smooth ride down the stairs. Anyone who needs an evacuation chair can call Don (4-3876).

ly betwixt his teeth and exercised his vaunted satirical skills to emulate the Swiftian logic and manner of speech. The progeny of the Garnerian labor is a discourse on the several advantages to be obtained by refraining from the current practice of burying corpses and other wastes, including those derived from the study of the nuclear sciences. The discourse having been published by a periodical esteemed for its seriousness of purpose, the *Journal of Irreproducible Results*, it remains for the steadfast reader to peruse and ponder the points propounded.

Parentcraft, Inc., is offering a group designed to help couples become better parents. Called "Loving Communication," the group will focus on children's high sensitivity to the relationship between their parents. Participants will learn to communicate more effectively with each other and to consciously model desired behavior for their children. The group meets Tuesdays at 6:30 p.m. from Oct. 16-30 at Parentcraft, 114 Carlisle SE. Cost is \$30/couple; child care is available. To register, call 256-1191.



SANDIANS at Tonopah Test Range take time out from a busy schedule for a group portrait in front of the Operations Center. The group supports 200 to

300 test operations a year — aircraft drops, artillery shell firings, and rocket launches. TTR provides a total acquisition data service — optical and electronic — for the DOE and military agency programs.

Tonopah Test Range

'Exciting, Challenging Work To Do'

It's 6:15 a.m. in late August at the EG&G hangar on McCarran Field in Las Vegas. The light is dim as Sandians of Tonopah Test Range Department 7170 board the waiting Ross Aviation DC-9 for the four-times-weekly commute to the range some 160 air miles northwest. As the Sandians troop on board their names are checked off the manifest, and they stow their gear under the seats — briefcases full of tech journals and memos, lunch buckets with assorted sandwiches and goodies. It's going to be a long day.

The DC-9 door slams shut at 6:25 and the plane begins to move across the field. By 6:30 it's airborne, the wheels are up, and the nose is pointed north. Most of the passengers lean back and try to get a little extra shuteye. Some use the time to study or catch up on their paperwork. Flight time is about a half-hour from Las Vegas to the airstrip at TTR.

The landscape below the aircraft is a flat desert floor between mountain ranges. The early morning sun creates long shadows of brown and beige. Not much activity down there. A white line of a dirt road runs across the desert and winds into the hills. On the far horizon are some irregular forms of white, flat and unmarked. They're dry lake beds.

The plane slows, descends, and touches down on the long asphalt runway at TTR. It's a valley surrounded by low blue moun-

tains and containing a long streak of lake beds. The Sandians move off the plane, climb into a dozen vehicles parked along the runway. Most head toward the Sandia compound (called the CP), a compact little city dominated by the Operations Building. Others head for distant facilities — tracking telescopes, radar facilities, the rocket launch complex, the gun installations.

During the drive to the CP, Ron Bentley (7170), range manager, and Wayne Lathrop (7173), operations supervisor, quietly discuss the coming day's activities. Dave Denton (7171), measurements group supervisor, and Dick Hay (7172), data systems supervisor, join in.

Tonopah Test Range covers 525 square miles within the boundaries of the Nellis Air Force Base Bombing and Gunnery Range. Established by Sandia in 1958, TTR is a modern test laboratory where research, development, and operational testing of the nation's weapon projects are conducted with scientific precision.

"Basically our job is to support Sandia projects," Ron Bentley says, "but other government agencies like our work — particularly the data we deliver — so that eventually we see many of the new weapon systems come through here. We've conducted tests of the Navy's cruise missiles and the Army's artillery shells. Our bread-and-butter is the support TTR provides for high altitude and low altitude deliveries of

weapon test units from DOE-funded projects and stockpile sampling programs. We're flexible and adaptable."

For the tests TTR furnishes the proof of the exercise — data. They can be in the form of high speed motion pictures tracking the trajectory through parachute retardation and impact of a weapon test unit released at Mach 2 from an F-111 over the dry lake bed target. Or they can be in the form of a computer printout detailing XYZ coordinates from release through impact and the record of all signals transmitted from the on-board TM package monitoring component functions. Or they can be both — plus whatever special requirements the test may need. Tests are totally documented, and first "quick-look" data are delivered within minutes after an operation.

Sophisticated instrumentation, most of it designed or adapted by the TTR people who operate and maintain it, is the heart of TTR. A dedicated computer network is its operational brain. From the moment the powerful TTR radar picks up an incoming aircraft for a drop test, its position in space becomes the key data in the computer network. All four radars have range and angle-to-the-target encoding devices to generate digital data outputs. The digital data are transmitted via microwave to the range Operations Control Center where the information drives the plotting boards and graphic

(Continued Next Page)

Tonopah Test Range

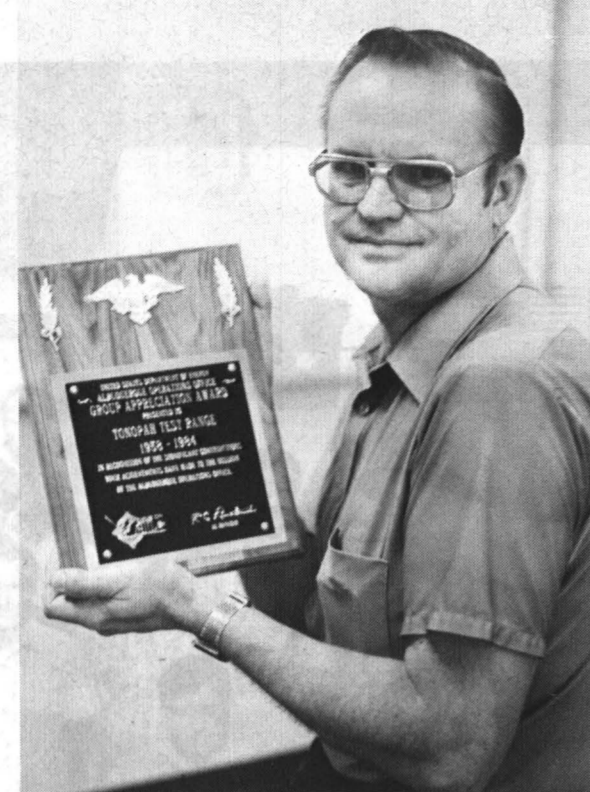
positioning and focusing of the giant tracking telescopes and mobile tracking cameras of the range.

When the test unit is dropped, the radars track it to impact, and hold the position to guide recovery crews who retrieve the unit. Mini-computers at each camera station link the instrumentation into the central system using the RF transmitted location data from the radars. With these systems, the mobile camera stations can be positioned at any point on the range. Tracking cameras are manned operations while fixed cameras positioned close to the impact area may be operated remotely.

"TTR is more than a facility," Dave Denton says. "It's also a group of professional, experienced people — many of them have worked at the range for more than 15 years. They know the requirements of testing inside out."

Sandians on the range are supported by EG&G technicians, REECO crafts and maintenance people, and Advance Security forces. All are "mission oriented," directly involved in the activities for successful completion of test operations.

"We run from 200 to 300 operations a year," Wayne Lathrop says. "Many would appear to be routine, but there are enough of the 'special' requirements to keep us on our toes. For instance, last fall we tracked an air-launched cruise missile continuously for four hours around various check points on the range with pinpoint accuracy and instrumented its terminal functions. There were a lot of requirements for high speed photography and an urgency on the data reduction. We received terrific support from Albuquerque divisions 7522, 7556, and 3153, and the project people were very pleased



RON BENTLEY (7170), range manager, displays a plaque presented to TTR people earlier this summer by DOE. It was a group appreciation award "in recognition of the significant contribution your achievements have made to the Albuquerque Operations Office." It was signed by Ray Romatowski, DOE/AL manager.

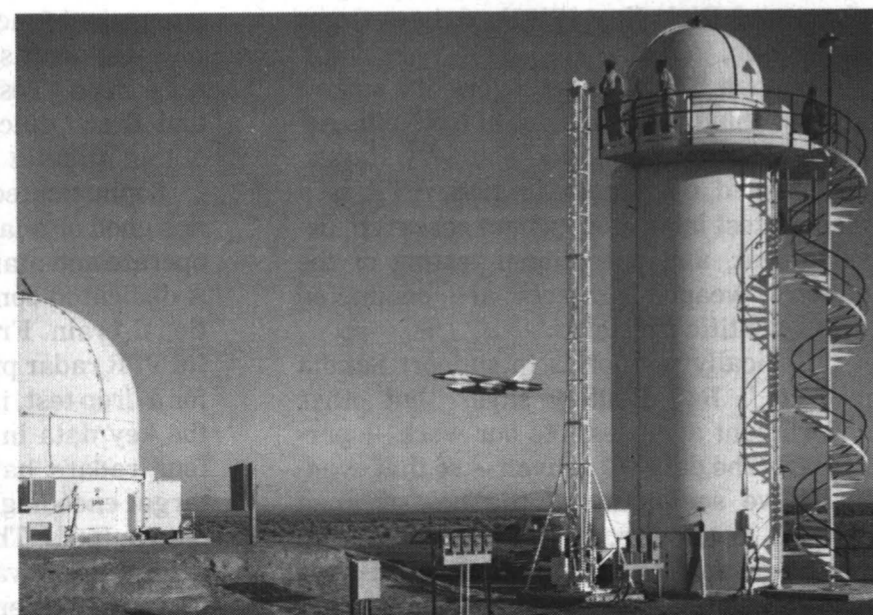
with the data. It was an extremely successful test."

When not involved in test operations, TTR people continually upgrade and maintain the equipment. It is their responsibility to keep current with technology advances and incorporate innovations into the instrumentation when performance or capability can be improved.

"It's the best of two worlds," Ron says as the DC-9 lifts off the runway at 5 p.m. "There's the excitement associated with the testing of advanced weapons systems coupled with the satisfaction of doing good, challenging technical work."



THE X-15 rocket plane landed at Mud Lake at TTR a half-dozen times during the experimental test program in the early 60s. Lloyd Young is at left.



A B-58 Hustler streaks over TTR in the early 60s carrying its unique weapons pod.

TTR In 'the Old Days'

Twenty-seven years ago on Feb. 4, 1957, the first test was conducted at Tonopah Test Range. A Mk5 test vehicle was dropped during the day and a Mk15 shape that night. This initial test series included drops by both fighter and bomber aircraft operating out of KAFB in Albuquerque.

Conditions were primitive. The instrumentation had been trucked from the old Salton Sea Test Base or from Yucca Flat at the Nevada Test Site where a test series had been conducted in 1956. Data for the night drops were collected from an ingenious system of intricately timed flashbulbs. Headquarters for the Sandians was a WWII ammunition igloo and a tin warehouse.

At the time Sandia, in conjunction with the Army, Navy, and Air Force agencies, had conducted an exhaustive but futile search for a test range site closer to Albuquerque (test units were readied here for aircraft operating from KAFB). Salton Sea was no longer viable. Smog from Los Angeles was spilling over the mountains and filling the Imperial

Valley with haze. There was not enough space for low altitude, high speed testing required for laydown weapons. In addition, developers and others were moving into the area, and the air space was becoming crowded with airline traffic into southern California.

The years have proved TTR a good choice. Test aircraft can still stage out of KAFB as well as Nellis AFB near Las Vegas or Edwards AFB in California. The range is still remote and isolated. From the early beginnings, the instrumentation has progressed to the most modern, sophisticated optical and electronic tracking systems and data acquisition technology available.

Often appearing to the range visitor to be "cowboys, crapshooters, and gunslingers" in their eagerness to get the job done, Sandians at TTR, nevertheless, are dedicated professionals. Three Sandians participated in the early testing programs at TTR and have remained with the group. Here are some of their comments:

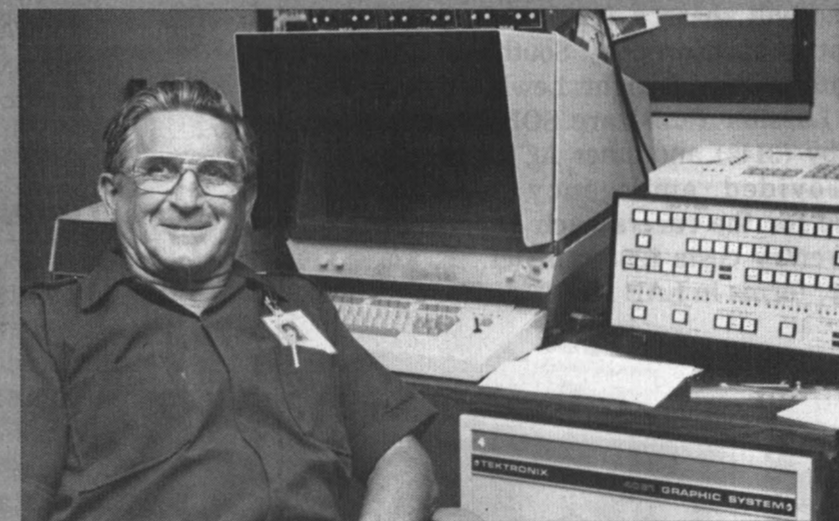
Lloyd Young (7173)

Lloyd Young joined Sandia at Salton Sea Test Base in September 1956. He was one of the crew that spent one week a month at TTR, usually photographing high altitude drops at night.

"The test unit carried a light," Lloyd says. "We would pick up the aircraft lights when the bomb bay doors opened and then track the unit into the target. We had four of the old Askania instruments, two radars, and two M-045 Mitchell cameras. The drops were usually at 2 a.m. We'd freeze in the winter waiting for the aircraft to come over."

Lloyd transferred to the plotting board in operations control in 1960 and, since then, has been a key man in most TTR operations. With voice contact, Lloyd guides the aircraft into its approach to the range and, over the target, gives the pilot the release command, and follows through to retrieval of the test unit. He is concerned with test requirements but, more important, range safety.

Lloyd's control console displays a map of TTR and a pre-plotted diagram of the test parameters. The image of the aircraft as tracked by range radars appears as a bright dot moving across the map. In the old days, Lloyd plotted the tests on a vertical display board located adjacent to one of the radars. Data from only one



LLOYD YOUNG (7173) relaxes in the TTR Operations center in front of the range control graphics systems. Lloyd is the TTR test controller.

radar were available at a single time.

"More precision, nowadays," Lloyd says. "We have the information from all radars in real time. I'd say we achieve 98 percent accuracy — on target. We seldom miss."

Lloyd remembers the operations involving the X-15 rocket plane and the half-dozen times the aircraft landed at TTR's Mud Lake... working with U-2 pilots at 60,000 feet perfecting maneuvers for an air sampling scheme... rocket firings... gun rounds... tests with the F-111, B-1, B-58, hundreds of B-52s....

There's a lot of tension during a test operation. Lloyd relaxes on hunting and fishing trips. Years ago, when Sandians lived in the town of Tonopah, Lloyd knew every trail in the surrounding desert and mountains — he traveled them on a trail bike. Now, he has a boat on Lake Mead.

Dave Schafer (7171)

Dave Schafer is another Sandian who joined the Labs at Salton Sea Test Base. The year was 1954 and Dave wanted to be a book-keeper. He wound up as an optical instrumentation specialist. His skill in tracking parachute-retarded high-speed drops using the big LA24 or ME16 tracking telescopes is legend at TTR.

Using radar position data, the computer network at TTR aids the tracking telescope operator in picking up the incoming aircraft and provides automatic focusing during the test run. The operator manually tracks the falling test unit guiding the telescope with a joystick control. He must keep the test unit in the center of the frame, anticipate parachute deployment, and stay with the unit as it appears to jerk backward and then slowly descend.

"There's no magic way," Dave says. "The test shape is traveling at Mach 1 and then it suddenly stops. You just have to stay with it. Experience makes the difference."

Dave remembers the TATER rocket

Bill Moore (7171)

Bill Moore joined Sandia at Salton Sea in January 1952 as a radar operator for water impact and parachute tests. He first visited the area that became TTR in October 1956. "We had been running tests at Yucca Flat at NTS. It was miserable work — hot, dusty, slow, lots of waiting. They were big weapon shapes, the Mk14 and 17, and some smaller Mk5s and Mk21s. They were dropped at night from B-47s and B-36s. We were living in tents. Most of the drops happened at 3 or 4 a.m. to get a precision fix on the altitude of the fuzing event. The test unit was rigged to fire a flashbulb at the moment of activation. At the time, even TTR looked good."

Bill has operated all the TTR radars for many years, specializing for 10 years on the big MPS 25 radar located atop Radar Hill.

Among the highlights of Bill's work at TTR has been tracking the X-15, the high altitude Mach 3 B70 and SR71 aircraft, and the U2. There have been so many F-111s and B-52s that no particular test stands out.

Tonopah Million Milers

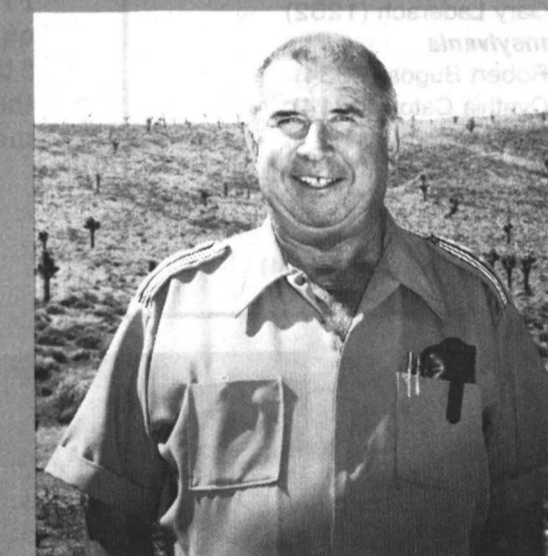
Fourteen Sandians of Tonopah Test Range Department 7170 have commuted a million miles or more back and forth from Las Vegas to the range. The four-days-a-week flight was inaugurated in 1969 with a twin motor turbo prop F-27, went modern with a sleek DC-9 jet in 1979.



DAVE SCHAFFER (7171) operates an ME16 tracking telescope mounted on a mobile camera station at TTR.

as being his most difficult tracking experience. "It was fast," Dave says, "very fast. It was a three stage Talos-Terrier-Recruit configuration, I think, and it was practically on a horizontal trajectory. It was only 35 or 40 seconds from launch to impact and I still don't know how I managed to keep it in the viewfinder."

Dave is one of the few Sandians who admits to really enjoying the glitter and glamour of Las Vegas. "I spend a lot of quiet evenings at home," he says, "but when it's time to go out — what a place! Las Vegas has everything, and I think it's great."



BILL MOORE (7171), veteran radar specialist.

He participated in the Dominick series of atmospheric tests at Christmas Island in 1962, and he's looking forward to another operation in the Pacific next year.

Bill is a boondocker — he spends a lot of time hunting and fishing, operating out of a motor home on trips to Canada, Mexico, and the Deep South.

The Sandians are Al Brazda, Dave Schafer, Lance Wilson, Don Anderson, Ken Johnson, Lloyd Young, Gene Arndt, Paul Roper, Art Rodriguez, Bill Moore, Jim Enlow, Howard Gipson, Diwitt Barker, and Bob Beasley.

Welcome

Albuquerque

Linda Caudell (21-1)
 David Gallegos (3618)
 Orlando Griego (3426)
 Evaristo Gutierrez (3618)
 Diana Helgesen (7556)
 Tony Johnson (1601)
 Jannifer Levin (3543)
 Charles McDaniel (2616)
 James Ortega (3731)
 Ruth Rimbart (22-2)
 Mineko Shriver (3426)
 Suzanne Stone (21-2)
 Linda Vigil-Lopez (3511)
 Susan Wayland (3726)

California

Sally Hoier (7472)

Colorado

James Pankey (2543)

Florida

Terrence Aselage (1846)
 Keith Vollmer (7246)

Illinois

Ronald Brown (7653)
 Thomas Henderson (7653)
 Daniel Mason (7653)

Minnesota

Douglas Adolf (1813)

Missouri

Martha Ernest (2640)

New Mexico

Andres Aragon (3426)
 John Pantuso (7655)
 Albert Romero (2532)
 Patricia Simari (2614)

Ohio

Scott Kuszmaul (2311)
 Gary Laderach (1252)

Pennsylvania

Robert Bugos (2334)
 Cynthia Caton (2314)
 Harry Caton (2312)

South Dakota

Lori Parrot (7633)

Tennessee

Rodney Owenby (2514)

Congratulations

Bob (2533) and Tina Cutler, a son, Christopher Earl, Sept. 16.

Donna Cox (155) and Ray Coulter, married in Albuquerque, Oct. 6.

Suzanne (6432) and Don (5321) Rountree, a son, Bryan Knauer, Sept. 11.

Rob Rechard (1524) and Pat Walker, married in Salt Lake City, July 14.

Kathy (7657) and David Jacot-Guillarmod, a son, David Isaiah, Oct. 1.

Tim (1534) and Gretchen Burns, a daughter, Hannah Piper, Sept. 1.

Fred (1531) and Yaeko Zeigler, a son, Maxwell Bertrand, Sept. 5.

Allen (1533) and Kaye Lynn Robinson, a daughter, Amy Lynn, Sept. 17.



Here are a couple current volunteer opportunities for employees, retirees, and family members. If you would like more information, call Karen Shane (4-3268).

CHACO CENTER, NATIONAL PARK SERVICE, UNM MAXWELL MUSEUM needs archival assistant to catalog photo records. Work at home is possible.

ALBUQUERQUE CIVIC LIGHT OPERA ASSOCIATION needs volunteers to plan and implement landscape design and to complete warehouse meeting room.

Fun & Games

Ski Swap — If it's autumn, can the Ski Swap be far behind? No. It's the Sandia Peak Ski Patrol's 18th annual edition, it's on Oct. 26-28, and it's at the Agriculture Bldg. at the State Fairgrounds. The Swap offers skis, boots, poles, and clothing for both downhill and cross-country skiers at reasonable prices. Ski Patrollers will be on hand (or foot) to offer advice on equipment. If you want to sell equipment, register it on Friday between noon and 8. The sale runs on Saturday from 9 to 4 and on Sunday from 2 to 4. The Ski Patrol uses the proceeds from the Swap to buy medical supplies and equipment to help injured skiers at Sandia Peak.

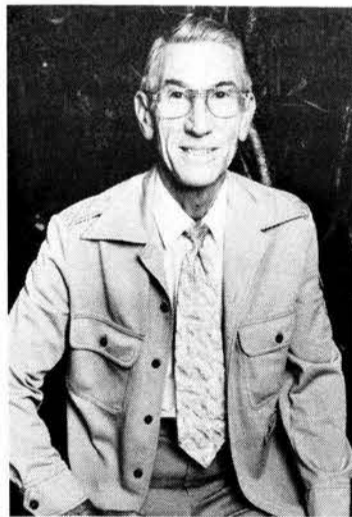
Cycle Racing — The 8th annual Oh My

God 100 motorcycle desert race is Oct. 21. It's now the only desert race in the state, so it's attracting some major riders, including some professionals, to the boondocks beyond Bernalillo, where the race takes place. Classes for experts, amateurs, women, over-40s, and beginners; trophies for first five places in all classes except experts, who will share a \$1200 cash purse. The event is sponsored by Southwest Off Road Enterprises; Dwight Lewis (DOE) and Bob Lassiter (5266) are SORE heads. Paul Kirby (3142) and other ACRA people have provided emergency medical assistance for the racers each year since 1977. Pre-entry costs \$25 until Oct. 16, \$30 after that; forms in LAB NEWS office.

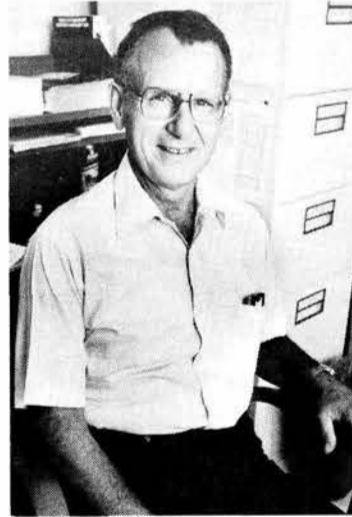
Retiring



Eva Silva (2113)



Lucky Sanders (7633)



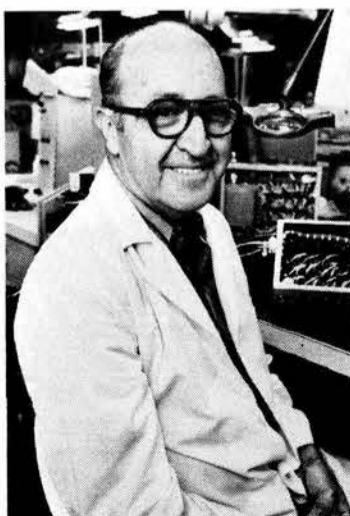
Bob Jeffery (5254)



Milton Waite (7655)



Teddy Chavez (7473)



Delfin Salazar (7474)



Pauline Welkenback (152)



Don Spatz (5119)



Reuben Minter (7633)



Marie Taylor (7632)

Supervisory Appointments

DONN STEWART to supervisor of Inorganic Process Division 7471, effective Sept. 16.

Donn first joined the Labs in 1961 as supervisor in the physical electronics section. He left Sandia in 1968 to return to school. After receiving his BS in chemistry from the University of Denver, Donn returned to the Labs as a process engineer in the glass lab where he later set up the glass melt facility. He was a project engineer for a project management support division for a short time and, in November 1981, was named supervisor of his former organization — Physical Electronics Section 7471-2.

Donn is a member of the American Ceramic Society. He's an ardent fisherman and camper, and enjoys wood and metalworking. He and his wife Evelyn have five children and five grandchildren. They live in the NE heights.

GERALD CESSAC to supervisor of Ceramic Processing Division 7476, effective Sept. 1.

Gerald joined the Labs in September 1971, working with the organic materials organization. Since 1973, he's been with Fire Sets Department 2360, first as a materials and processing consultant and, more recently, as a component and tester engineer. He was selected a Distinguished Member of the Technical Staff in 1983.

Gerald received a BS and PhD in physical chemistry from the Universities of Southwestern Louisiana and Maryland, respectively. He is a member of the American Chemical Society. He enjoys hunting, fishing, camping, and woodworking. He and his wife Susan and their three children live in NE Albuquerque.

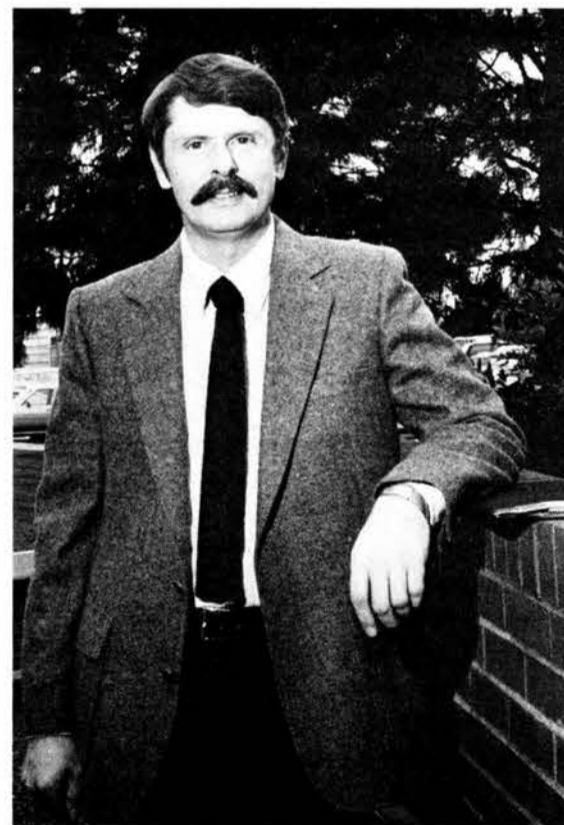
DON COOK to manager of Fusion Research Department 1260, effective Sept. 17.

Since coming to Sandia in 1977, Don has worked in Pulsed Power Systems Department 1250. From 1977-81, he was a conceptual designer and analyst on inertial confinement fusion reactors, and an experimenter on long-pulse electron beam diodes. He has been supervisor of the Pulsed Power Engineering Division 1251, responsible for engineering on the Particle Beam Fusion Accelerator (PBFA II), since 1981.

Don received his BS in nuclear engineering from the University of Michigan. He earned his MS and PhD degrees in applied plasma physics from the Department of Nuclear Engineering at MIT. He's a member of the American Physical Society and the American Nuclear Society. Off-the-job Don enjoys racquetball, jogging, and woodworking. He and his wife Peggy and their two daughters live in the NE heights.



DONN STEWART (7471) and GERALD CESSAC (7476)



DON COOK (1260)

Sandia Hosts 1984 CQ-WE Radio Contest

Sandia is host for the 1984 CQ-WE Contest, the annual amateur radio competition among AT&T/Bell System companies. The event is scheduled Nov. 10-11. Open to all employees holding amateur radio licenses issued by the FCC, the contest is scored ac-

ording to points earned for the total number of other stations contacted during the contest period.

Further information (including an entry package) is available from Jim Baremore (5210), on 4-5553.

Events Calendar

- Oct. 12-14 — Annual Grecian Festival: food, dancing, arts & crafts; St. George Greek Orthodox Church, 247-9411.
- Oct. 12-14 — Autumn Fiesta 1984, Childhood Treasures: all forms of needle arts, Albuquerque Garden Center, 821-0428.
- Oct. 12-14 — "Greatest Show on Wheels," custom car show; 12th & 13th 11 a.m. to 10 p.m., 14th 11 a.m. to 7 p.m., admission, Convention Center.
- Oct. 13 — 75th Anniversary Celebration of the Museum of NM, Santa Fe. Entertainment on the plaza, historic fashion show, antique car show, and more.
- Oct. 14 — Arlo Guthrie, Doc Watson, Dave Bromberg in Concert, 8 p.m., Convention Center, tickets: Giant Ticket Outlets.
- Oct. 14-Feb. 10 — "Where Mountains Tremble: Weavings and Paintings of the Highland Maya" (Guatemala); Wheelwright Museum, Santa Fe, 1-982-4636.
- Oct. 15 — Maria Benitez Spanish Dance Company, 8 p.m., KiMo.
- Oct. 18 — Keith Martin Ballet Company, 8 p.m., KiMo, 766-7816.
- Oct. 19-20 — NM Symphony Orchestra, Panayis Lyras, pianist, with guest conductor Ronald Braunstein, 8:15 p.m., Popejoy.
- Oct. 19-21 — Albuquerque Philatelic Society presents "Alpex 84": door prizes, raffle prizes, exhibits, U.S. Postoffice, stamp dealers bourse; 19th & 20th 10 a.m. to 9 p.m., 21st 10 a.m. to 4 p.m.; free admission, Shalako Motor Inn, 12901 Central Ave. NE.
- Oct. 19-21 — La Compania de Teatro de Albuquerque presents "Plaza," by NM playwright Denis Chavez; 8 p.m., KiMo, 766-7404.
- Oct. 20 — NM Pageant of Bands, high school marching band competition, 8:30 a.m., Albuquerque Sports Stadium, 298-4331.
- Oct. 20 — Art and hand craft show and sale, Mitchell School, 10121 Commanche NE, 9 a.m. to 5 p.m., Benefit Order of Amaranth.
- Oct. 21 — Movietime at the KiMo — Movies by Great Directors: "Gold Rush," Charlie Chaplin (1925), 7 p.m., KiMo.
- Through Nov. 4 — Pueblo Pottery Designs and Mission Church Decorations, Maxwell Museum of Anthropology, UNM, 277-4404.

Sympathy

To Marilee (155) and Ray Letourneau (5171) on the death of his mother in North Attleboro, Mass., Sept. 23.

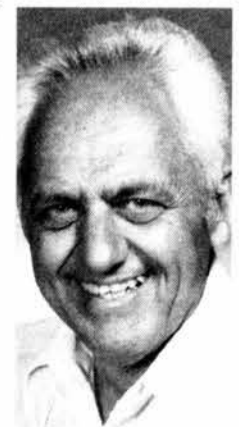
To Don Keener (7653) on the death of his father in Pennsylvania, Sept. 30.

Death

Richard Case of Project Engineering Division 5233 died Sept. 25 after a brief illness. He was 53.

He had worked at the Labs since July 1956.

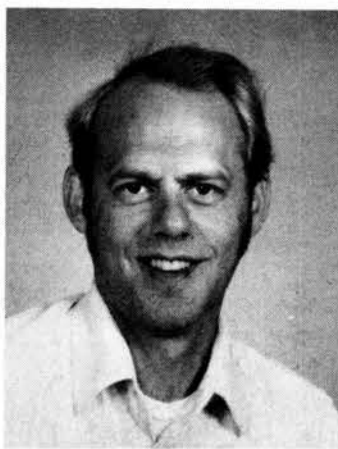
Survivors include his wife, daughter, and son.



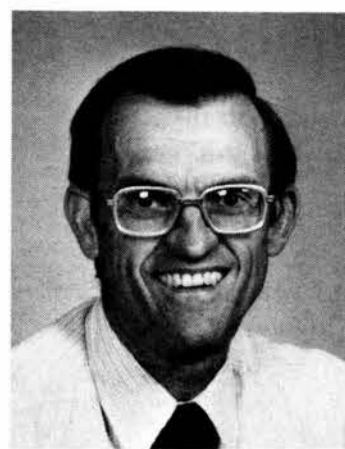
MILEPOSTS

LAB NEWS

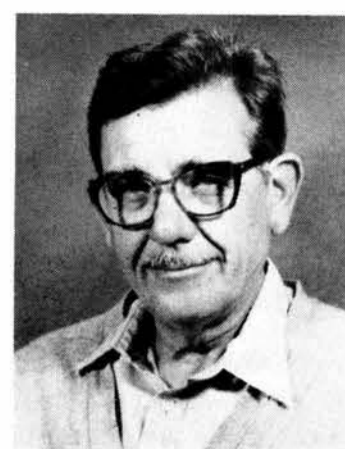
OCTOBER 1984



Gary Kirchner (8175) 15



Ken Marx (8363) 15



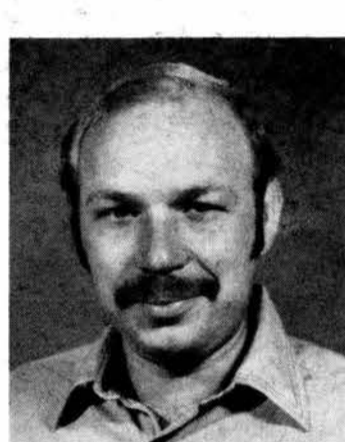
Bill Benedick (1131) 30



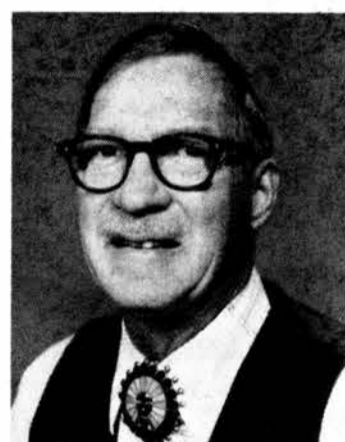
Jim Gravlin (3462) 35



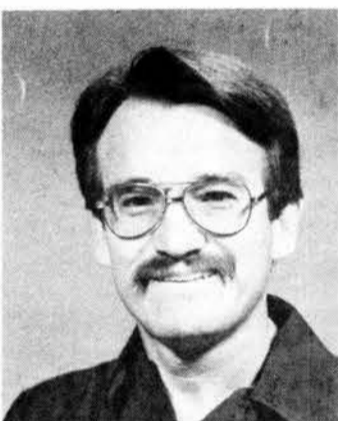
Herb Stanley (7544) 15



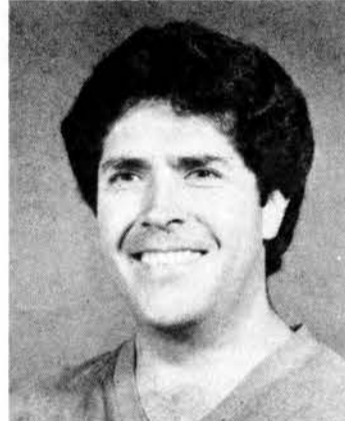
Jerry Gajewski (7485) 10



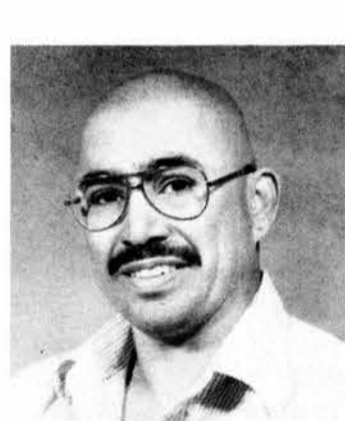
George Peterson (5313) 30



Reyes Chavez (7474) 10



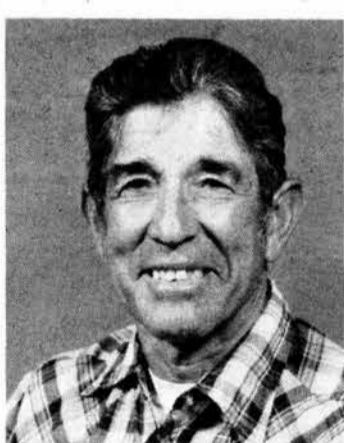
Elmer Gurule (7241) 10



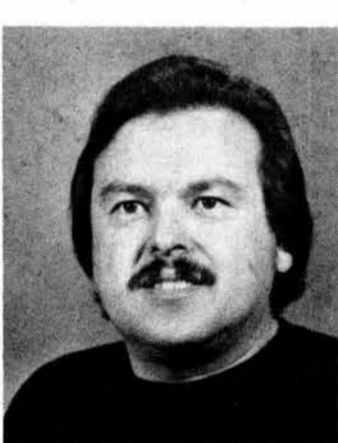
Johnnie Nevarez (7474) 10



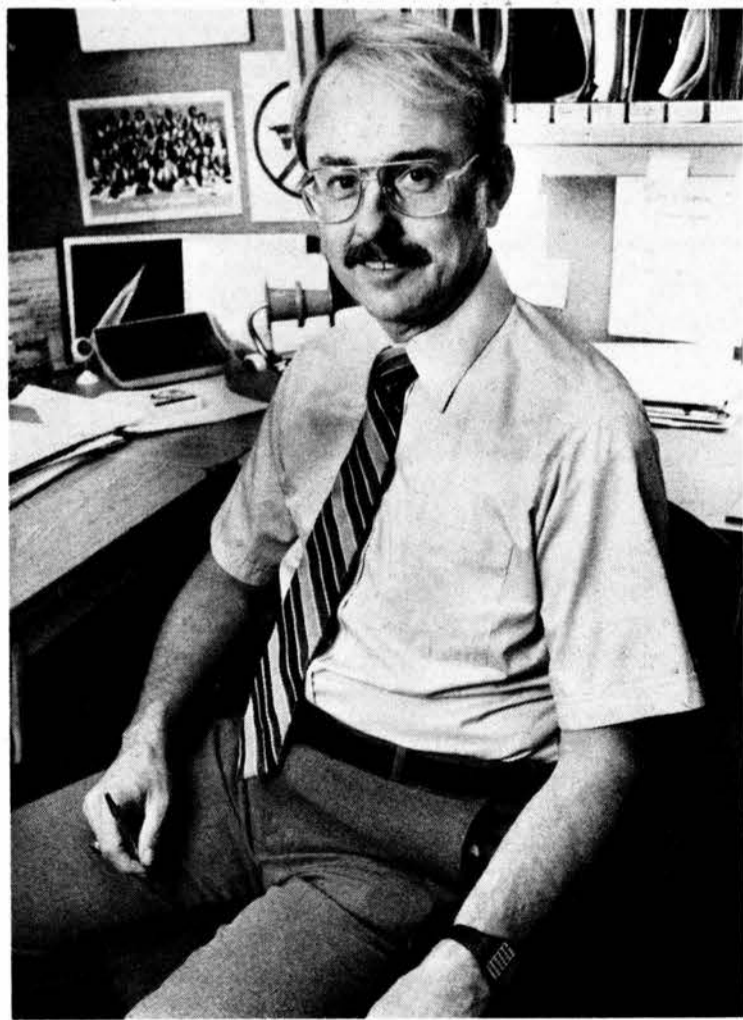
Gale Weaver (7556) 15



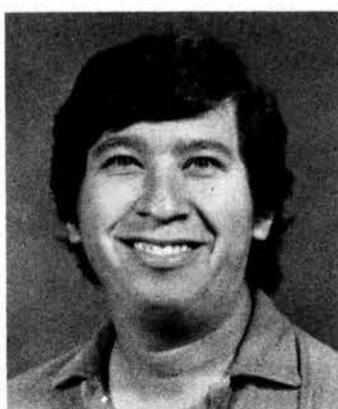
Frank Garcia (3618) 25



Frank Carrillo (7482) 10



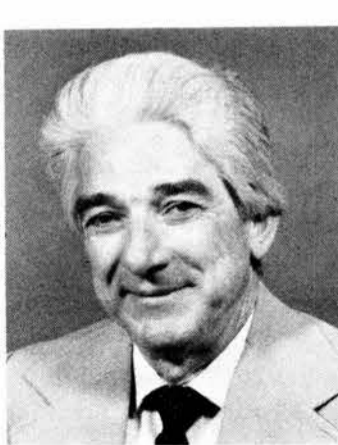
Jess Tidmore (3721) 20



Floyd Gallegos (7485) 10



Stan Reynolds (7535) 35



Jim Collier (7266) 30

Nicorette Support Group

The next meetings of the Nicorette support group sponsored by Medical will be Oct. 17 (Coronado Club B-5) and Oct. 31 (Medical Conference Room in T-13); both meetings run from 12 to 1. If you'd like to stop smoking but you need that nicotine kick, Nicorette can help. More info from Laura on 4-7169.

Diet and Cancer

What — and how much — you eat affects your risk of getting cancer. The American Cancer Society recently released a set of nutritional guidelines based on research connecting eating habits and the disease. Here are the new recommendations and the ra-

tionale underlying each.

1. *Avoid obesity.* That is, stay — or get — slim. The Society's 12-year study of nearly a million Americans found that cancer risks were higher among overweight men and women, particularly those 40 percent or more overweight.

2. *Cut down on total fat intake.* Reducing the amount of fatty foods you eat, according to several studies, reduces your chance of getting breast, colon, or prostate cancer.

3. *Eat more high-fiber foods.* Even though scientists do not fully agree that such high fiber foods as fruits, vegetables, and whole-grain cereals can help prevent cancer, the Society feels that they are a good substitute for fatty foods.

4. *Eat foods rich in vitamins A and C.* The Society recommends obtaining these potentially protective vitamins from fruits and vegetables in the daily diet, not as supplementary capsules or tablets. (Vitamin A in these forms can be toxic in excessive

amounts.)

5. *Load up on the cruciferous vegetables* (once you find out what they are). They're the members of the mustard family you hated as a child — cabbage, broccoli, Brussels sprouts, kohlrabi, and cauliflower. And they may help prevent the development of cancer, particularly cancers of the gastrointestinal and respiratory tracts.

6. *If you drink, don't drink much.* Heavy drinkers, especially those who also smoke, are at unusually high risk for cancers of the mouth, larynx, and esophagus.

7. *Keep your consumption of preserved meats down.* Salt-cured, smoked, and nitrite-cured meats such as hams, fish, and some varieties of sausage smoked by traditional means absorb cancer-causing tars similar to those contained in tobacco smoke. Also, some limited evidence links salt-cured and pickled foods to increased risk of cancers of the stomach and esophagus.

UNCLASSIFIED ADVERTISEMENTS • UNCLASSIFIED ADVERTISEMENTS • UNCLASSIFIED ADVERTISEMENTS • UNCLASSIFIED ADVERTISEMENTS

Deadline: Friday noon before week of publication unless changed by holiday. Mail to: Div. 3162.

RULES

1. Limit 20 words.
2. One ad per issue per category.
3. Submit in writing. No phone-ins.
4. Use home telephone numbers.
5. For active and retired Sandians and DOE employees.
6. No commercial ads, please.
7. No more than two insertions of same ad.
8. Include name and organization.
9. Housing listed here for sale is available for occupancy without regard to race, creed, color, or national origin.

MISCELLANEOUS

WOVEN wood for window 2'10"H x 4'W, \$20; Early American solid wood rocker w/pads, \$40; KS spread w/matching drapes & rod, \$40. Black, 296-8414.

TROMBONE, Conn, w/case, \$80. Dalton, 873-2644.

SCREEN door, 36", wrought iron, w/hardware & screens, \$125; bar w/two matching stools, \$125. Romero, 884-3263.

HIKING boots, ladies size 7 med., worn twice, \$25. Coleman, 884-5009.

BEDSTEAD, dbl. size, solid cherry, Early American styling by Kling, \$35; upholstered chair, floral slipcover, \$35. Rainhart, 821-3690.

EXERCISE bicycle w/timer, speedometer, & reading rack, \$65; steel-stringed guitar, \$30. Smith, 299-6873.

CHEVY 6 parts: Webers, magneto, block, pistons, everything. Golightly, 293-5987 after 6.

SOFA & loveseat, coffee table, end tables, all for \$300; red swivel rocker, \$75. Duimistra, 821-7910.

MOTORCYCLE helmet, full face style, ex. lg., white, used 6 times, \$16, new \$40. Holmes, 292-0898.

SOFA, queen size Flexsteel sleeper, innerspring mattress, \$250. Andersen, 296-1004.

ACCORDION, Italian-made, new, 120 bass, 10 stops, \$575. Johnson, 884-0690.

PONTIAC swivel rockers, matching his & hers, crushed velvet, copper colored; 30 x 60 metal desk w/typing table, woodgrain top. Iman, 299-6500.

EXERCISE treadmill, Sears, \$50. Chorley, 296-1454.

GARDEN shredder, 6 HP, \$250; chains for small radials (VW, etc.), \$20. Taylor, 869-2934.

CAMPER, 8' half cabover, 3 burner stove, ice box, butane tank, sleeps

4, \$600. Navalesi, 344-0598.

B-B-Q grill, 22" Weber, \$35. Horton, 883-7504.

RING, .59 carat diamond solitaire graded AGS 0/0/3 (cut, color, clarity: 0 best, scale 0-10). Craft, 821-1369.

TRAVEL Trailer, 1972 18' Aristocrat, oven, stove, refrig., water heater, \$2200 OBO. Montoya, 836-6301.

TEKTRONIX oscilloscope, model 531, w/Scopemobile, \$125. Kraft, 299-2157.

GAS stove, 30" apt. size; baby clothes, misc. baby items; coffee table. Maestas, 831-4072 after 5:30.

DRESSER, 9-dwr. w/mirror & 2-dwr. nightstand, pecan French provincial, \$450. Cook, 266-6740.

FREE to good home, small Terrier cross, female, spayed, all shots. Evans, 294-8776.

STEEL rack for LWB pickup, \$75; Outers clay pigeon target thrower & 1 box clays, \$35; tow chain, 3/8 x 16', \$20. Wright, 296-3850.

TYPEWRITER, Smith-Corona manual w/carrying case, \$30 firm. Monahan, 892-1476.

DRAPES, wall-to-wall custom made, unlined, washable, lemon/lime combination woven polyester, 15' x 96", \$40. Burstein, 821-6688.

COCKATIEL, lovebird, lg. cage, accessories, \$100; Atari 2600, many cartridges, \$100; IBM elec. typewriter w/stand, \$150. Kureczko, 298-1577.

GAS mower, 22", Sears, self propelled, 3 yrs. old, \$40. Marchi, 299-8516.

GUN CABINET, Early American, 6-gun, sliding glass doors, lockable, dwr., \$100; Early American pistol cabinet, sliding glass doors, 26" x 18.5" x 4.5", \$35. Edmund, 881-7974.

TWIN beds, Bassett, complete, white, \$89 ea.; matching washer/dryer, \$225; playpen, mesh sides, \$20. Kohut, 884-1405.

LAWNMOWER, Sears power, reel; stereo record player; car AM radio; sewing machine. Miyoshi, 821-9118.

New Standard Encyclopedia set, never used, \$200 OBO. Trujillo, 898-6502 after 5.

JUICERATOR, Acme Supreme w/citrus juicer attach., \$125. Hunter, 256-0160.

JENSEN 10" speakers, \$50; new Olympus 50mm lens, \$50; Poe table, \$50; Diem, 294-3503.

'75 TOYOTA Wheel w/7.50 x 15 tire, \$50 OBO; A242 steel bumper for Toyota truck, \$100 OBO. Jewell, 892-6373.

TV, 19" color, \$100; ski equip., all for \$125; used built-in dishwasher, \$25. Graham, 293-7302 after 5.

TENT, 6-man squad, \$25; brass 30-06 & 308, military, regular & match, \$1.50 & \$2/100. Erick-

son, 299-6824.

MODEM, Anderson Jacobson-AJ1259, 1200 baud-full duplex, originate/auto-answer, \$750. Lieberman, 884-4729.

BABY CRIB, ball casters, adjustable spring & side, spring included, \$35. Durand, 293-4607.

BALDWIN spinet organ, walnut finish, w/bench, 2 manuals & pedals, \$360. Hodgden, 883-4752.

SOFA, \$75; small dog carrier, \$18; roll-away bed, twin, \$20; motor-home side dinette seats, pullman, makes twin bed, \$125. Parsons, 298-3053.

CABOVER CAMPER, '76 Mitchell, sleeps 4, oven, range, heater, refrig., sink, closet, potty, 2 gas bottles, jacks. Cummings, 292-0524.

TRUCK TIRES, 78-15 Bridgestone mud & snow radials with rims for Toyota, \$100. Valdez, 265-2457.

SCUBA EQPT, Dacor Pacer 900 regulator with pressure gauge, aluminum tank, harness, weights, Sequest BC, light, \$250. Russell, 298-0162.

AM/FM/STEREO, 8-trk, record player bar, \$100; carpet, \$20; coffee, end tables, \$100; hutch, china, table, chairs, \$700. Filusch, 299-5932.

GITAR, 79 Gibson, Les Paul Custom, cherry sunburst, \$600 OBO. Mahnesmith, 294-0078.

SKIS, XC, 210cm Karhu XCD-GT metal edged with thick telebindings; Alpine, 170cm Fischer Cut 70s with Marker M25 bindings and brakes. Ritchey, 268-7620.

PINBALL MACHINES, William El Toro classic two player, \$200; Cabaret four player, \$300; both play fast. Harrell, 294-3456.

FIBERGLASS solar glazing; clear Tedlar-coated Filon type 548, 34x1320 rolls, \$150/roll. Mattox, 292-7763.

TIRE & WHEEL, 875x16.5 on 8-hole wheel, mounted and balanced, \$50. Hole, 255-1444.

TRUNDLE BED, chest of drawers and vanity, 23-inch color TV console, lean-to solar greenhouse. Shaut, 299-8569.

VIC 20 computer, \$70; cassette recorder, \$30; programs and manuals, \$25; Eas-lift hitch & electric brake control, \$45. Key, 298-7988.

TRANSPORTATION

BUICK SKYLARK, 350 engine, \$400. Lopez, 265-3296.

'81 AUDI 5000S, sunroof, A/C, AM-FM, cruise control, 4-dr., midnight blue, \$7900 OBO. Louder, 256-3684.

'81 SUZUKI 750, 11,000 4 into 1 header, stock pipes, \$1500. Gonzalez, 821-5887.

BICYCLE, men's 3-sp., 21" frame, drop handlebars, rattrap pedals, fenders, chainguard, kickstand, \$50. Joseph, 299-6989

'70 LAND ROVER, 90K miles, all manuals, spare engine w/35,000 miles, \$2500. Goodrich, 299-6684.

'81 SUZUKI G555LX, ghost by Vetter, less than 10K miles, \$800. O'Neil, 299-5272 or 892-6754.

'81 FORD F-100 Styleside pickup, 300 C.I.D., 6-cyl., 4-sp., AM-FM, 19K miles, \$5600. Martin, 294-8010.

'77 VW VAN, new paint, tires, upholstery, \$3000. Armstrong, 298-4526.

'80 HONDA ACCORD (LX), \$4500; '82 Pontiac Firebird TransAm, loaded, \$9500. Olsberg, 831-4385.

'76 PENTON 400cc dirt bike, \$500; utility trailer, \$350. Wright, 296-3850.

'77 OLDS CUTLASS S, V-6, 230 cu. in., AC, PS, PB, AT, low mileage, AM-FM. Randall, 821-0388.

17-FT. CABIN CRUISER w/trailer, 110 hp Mercury inboard. Eiffret, 268-1854.

'75 HONDA GOLDWING, Vetter fairing, saddlebags, tail trunk, 39K miles, new paint, tires, battery, air suspension shocks, \$2500. Brandon, 836-5621 after 5.

MAN'S BICYCLE, \$20. Diegle, 294-5565.

'75 CAMARO, needs paint, \$1600 in new parts in last 6 months, \$1700 OBO, will trade for pickup. Duran, 867-3629.

'82 CAMARO, red, 4 cyl., 4-sp., AC, AM-FM cassette, below book at \$6795. Jefferson, 293-3529.

'70 CUTLASS Supreme, 2-dr., AM, AC, PS, PB, new paint, bucket seats, new tires, \$2100; '83 Peugeot 505S, AT, AC, PS, PB, AM-FM, sunroof, \$10,200. Mahnesmith, 294-0078.

'80 SUZUKI, GS450E w/Quicksilver fairing & luggage rack, Bates trunk, 60 mpg, \$750. Gardner, (Moriarty) 832-6181.

'83 CHRYSLER New Yorker, sun roof, loaded, extended warranties, below retail. Carli, 298-9271 evenings.

'31 MODEL A Tudor, fully restored, 300 miles, LeBaron Bonney interior, many accessories, \$8950, finder's fee \$100. Boehmke (Livermore) 415/447-6670.

'82 ISUZU PU, 21K miles, PS, PB, AC, AM-FM cassette, new radial whitewalls, long bed, chrome bumpers, hitch, \$5500. Hernandez, 268-5000.

'72 MONTE CARLO, new Imrod paint, upholstery, tires, AC AM-FM, 402 V-8, 96K miles, \$2500. Donham, 299-6224.

'71 VEGA hatchback, rebuilt and sleeved engine, 4-sp., AC, transmission needs work, \$500. Kaye, 293-0499.

'66 VW stationwagon. Runkle, 877-2008.

'74 DODGE Dart, slant 6, AC, PS, PB, AM-FM radio, 4-dr, \$750. Morris, 292-5112.

REAL ESTATE

FOREST LAKES, wooded acre lot near Vallecito Reservoir. Smith, 298-7365.

1 ACRE in Los Lunas/Tome area, below appraisal, mountain view, restrictive covenants, \$15,900. Gonzales, 265-9031.

3 BDRM, northeast, Dennis Chavez school, 5 yr old, 1620 sq ft, \$7900 down, assume 12.5% VA, payments \$920 PITI. Shire, 821-8460.

'76 CENTURION mobile home, 14 x 64, 3 bdrm, 1 1/2 bath, refrig, washer, dryer, Del Ray Park, \$12,900. Miglionico, 296-1812.

SMALL DOWN buys ownership interest in \$120,000 home in Los Lunas. Payments \$850-\$950/month. Pullen, 892-0022.

20 ACRES NE of Edgewood, 2.5 miles east of SR344 on SR472, 660-ft frontage on 472, 360° view. Kureczko, 298-1577.

NEAR EUBANK & Menaul, 1700 sq ft, 3-bdrm, 1 bath, den, covered patio, \$63K, \$20K down, balance REC. Wallace, 298-3767.

2.5 ACRES in Cibola Natl. Forest off So. 14 on 4th of July road. View. Zawadzkas, 884-8956.

2 BDRM. ENERGSAVER, 1 1/2 bath, large master bdrm, greatroom, pitched roof, fp, auto sprinklers, dbl garage, \$68K, assumable 11.5% FHA loan. Fuerschbach, 296-1652.

WANTED

TRAYS & slide holders to take 40 2 x 2 slides to fit in old Bell & Howell slide projector. Stamm, 255-2640.

DBL BED MATTRESS, box springs, ladder, rowing machine, butcher block dinette set. Chandler, 296-3323.

TO TRADE: 270 Winchester with scope, 2x7, see-through sights, for 35mm camera and accessories of equal value. Anzola, 299-4519.

SMALL older dog for adult home. O'Neil, 892-6754.

FEW PIECES of flagstone to finish walkway. Chorley, 296-1454.

CAR SEAT for infant-toddler (17 lbs.) Ontiveros, 292-6612.

TWIN-SIZE mattress in good condition. O'Bryant, 268-9049.

OWNER'S MANUAL for '80 Datsun 310. To borrow or buy. Schubeck, 821-3133.

FLY TYING equipment, especially complete sets. Jones, 299-4776.

COMPUTER TERMINAL, TeleVideo 910 or 912 and phone modem. Troncoso, 897-1167.

VIC 20 computer (computer only, no peripherals). Harrigan, 266-4143.

Coronado Club Activities

Shrimp Peel Buffet Tonight

NEW PRESIDENT of the Coronado Club board of directors is Frank Biggs (7112). Vice president is Tom Mehlhorn (1265), Bruce Davis (2300) is treasurer, and Terry Holovka (1260) is secretary. Art Arenholz (20) is the Sandia representative.

HAPPY HOUR tonight sees a new variety group called Talisman on the bandstand. Dining room feature is a shrimp peel buffet for \$7.25. Happy Hour prices (very reasonable) start at 4:30 and continue until the music starts at 8:30. Dining room hours are 6 to 9 p.m.

Next Friday, Oct. 19, has barbecued ribs, special two-for-one at \$9.95, featured in the dining room while the Isleta Poor Boys play for dancing in the ballroom.

MONDAY NIGHT FOOTBALL parties continue in the main lounge with special prices until closing. In addition to a free spread of goodies and munchies, the evening includes big screen national television coverage of the games. More free hors d'oeuvres are spread on Wednesdays while Happy Hour prices are in effect from 4:30 until 6:30.

CORONADO SKI CLUB meets at 7 p.m. on Tuesday, Oct. 16, for its monthly get-together. Taos Ski Valley reps will provide the program. Ski movies, a freestyle ski team tour of Europe, will be shown. Standard Ski Club low prices will prevail and super door prizes will be given away. On Thursday, Oct. 18, the Ski Club is holding a ski equipment clinic at 7:30 p.m. in the El Dorado room. Brian Gallagher (Competitive Spirit) will discuss pros and cons of new and old equipment.

A FINANCIAL SEMINAR conducted by American First Financial is set for Tuesday, Oct. 23, at 7:30 p.m. Admission is free.

A FAMILY NIGHT out is the idea behind the Thursday, Oct. 25, steamship roast beef buffet. Enjoy a fine dinner at reasonable prices — \$5.95 for adults, \$3.25 for children under 12. A live entertainment feature called the Magic Dance Show is scheduled at 7:30. Dining room hours are 6 to 8:30 p.m.

A CLUB COSTUME PARTY for adult members is set for Saturday, Oct. 27. The evening includes a filet mignon dinner for \$7.95, dancing to a great group called Amigas, and prizes for the best costumes.

ANNUAL KIDS' HALLOWEEN party, including the Club's famous "House of Horrors," happens Sunday, Oct. 28, starting at 6 p.m. There'll be games upstairs with lots of prizes, more prizes for best costumes, and numerous goodies. The monsters (beware!) will be downstairs. Assorted witches, spooks, goblins, Frankenstein, the Wolfman, and the Mad Butcher will be loose all over the place.

Tickets are \$1 per child, 12 and under, and are good for five games, one free coke, one free bag of popcorn, and admission to the House of Horrors. Additional tickets for the House are 50 cents. Adults may also see



DOE AWARD OF EXCELLENCE for Outstanding Safety performance for 1983, currently DOE's highest safety award, was presented to Sandia by Leo Traver, director of the Management Support Division, DOE/AL. Accepting for the Labs was President Dacey. The award goes only to "Those contractors...whose outstanding safety and health performance exceeded award criteria and who have made a significant contribution to the [DOE's] safety record," according to the citation; five other agencies received the award this year. All smiles at the occasion were (from left) Leo Apodaca, chief of AL's Contract Administrative Branch; Traver; Dacey; Jerry Jercinovic, manager of Safety Department 3440; Don Knott, supervisor of Operations Engineering Division 3662; and Don Parker, supervisor of Industrial Hygiene and Toxicology Division 3311.



THIS IS ILLINOIS? Well, it's the Land of Lincolns. Their owners recently organized the New Mexico Lincoln Club and plan a show, open to the public, on Oct. 21 from noon until 4 p.m. in the parking lot and showroom of Ken Johns Lincoln Mercury dealership, 7201 Lomas NE, Sandians participating include (from left) Bill Kraft (7250) with this '62 4-door Continental convertible, Tom Sanchez (3631) and his '70 Mk-III Continental, Jim Strascina (5264) and his '63 Continental convertible, and Sandra Barber (2500A) and her '77 Mk-V Continental. In addition to Lincolns of all ages and models, the event includes movies in the showroom. There is no admission charge. Lincoln owners interested in Club membership may contact Bob Forkner, retired Lt. Col. formerly at KAFB, at 883-5100 or 884-4385.

the show for 50 cents. Hamburgers and hot dogs will be available. Members and families only, please.

TRAVEL — Pre-trip meeting for the Mazatlan tour group is set for Tuesday, Oct. 16, at 7 p.m. in the El Dorado room. Next

week is also the last opportunity to sign up for the Club-sponsored trip scheduled Nov. 13-20. The package costs \$399 and includes airfare, transfers, seven nights at the luxurious Playa Mazatlan, a cocktail party, a Fiesta party, and bellman tips. Check with the Club office.